Reverse psychology

Advances in materials and technology are enabling more practitioners to offer orthokeratology as a vision correction option. OPTICIAN reports on a technique that ties the patient to the practice

Deforming the cornea to reduce the effects of myopia was understood as a concept as far back as ancient China. Mandarins were said to have slept with tiny sandbags over their eyes to reap the benefits of improved sight during the day.

A couple of millennia on, and for mainstream users of vision correction methods, knowledge of and usage of orthokeratology has hardly progressed at all. Early contact lens fitters found that the flattening effect contact lenses had on the cornea could enable myopic recruits to pass their eye sight test in army medicals.

This has steadily progressed onto orthokeratology fitting sets and skilled practitioners of the 'art' using a variety of lenses to produce the required corneal shaping to provide the patient with good vision.

More recently, advances in contact lens materials, computer and manufacturing technology have made bespoke lenses a reality for the most modest high-street practice.

Orthokeratology employs overnight wear of a reverse geometry hard contact lens that moves the cell structure on the surface of the cornea, flattening the surface and correcting vision. The lens is worn overnight and removed on waking to allow the wearer device-free corrected vision throughout the waking hours.

Despite being a well-established method of correction in northern Europe and the US, knowledge of the technique in the UK is low. A recent seminar on the subject, hosted by Ortho K proponent No 7 Laboratory at the Institute of Optometry has brought the technology back to the fore.

No 7 employs the DreamLite lens design that has been available in Europe since 2002 and has thousands of fits under its belt. The lens itself is made from the Boston XO material which has a high oxygen permeability quoted as ISO/Fatt Dk of 100 on the firm's website.

As well as winning a lot of column inches for optometry, Ortho K has also captured the imagination of practitioners looking for a way of building long-term relationships with their patients. It also provides a way for practitioners to offer customers innovative vision correction techniques.

No 7 sales and marketing manager Ian Goble says while patients are aware of procedures such as Lasik there is little knowledge of Ortho K. But Ortho K has all the benefits of laser surgery plus the advantage of being reversible, argues Goble.

He also makes the case for using Ortho K in patients wearing soft lenses. No matter how good modern lenses become, there is still a degree of end-of-day discomfort that wearers will suffer especially in air-conditioned areas and dusty environments. But being a soft lens wearer does not necessarily mean the patient will find it difficult to wear hard lenses at night, he adds.

Another obvious group of potential wearers are those interested in refractive surgery. Ortho K offers day-long correction while doing away with the necessity for surgery. Other groups suggested by practitioners at the seminar were teenagers and dry eye sufferers. At present 90 per cent of Ortho K wearers are former soft lens wearers.

'Ortho K has a proven track record, it's reversible. If the patient finds it unsuitable they just discontinue wear,' says Goble.

The intention of the meeting at the Institute was to raise consumer awareness of the procedure, something the stories in the media should certainly have achieved. So far coverage includes Radio 4 and Radio 5, the *Evening Standard*, *The Independent on Sunday*, *The Guardian* and the *Mirror*. The most recent saw TV presenter Philip Schofield endorsing the process. This coverage has prompted hundreds of enquiries from members of the public to No7 and increasingly within practices too.

Katie Yeo, professional services manager at No7, says that the predictability of Ortho K brought about by technology advances is the key to its use in modern optometric practice. Corrections down to -4.5 can be safely achieved and vision reverts back to baseline in a couple of days after wear is stopped. She says the advances in topography and in micro-lathing of reverse geometry lenses have been among the significant changes that have made Ortho K a practical proposition for everyday practice.

No 7 runs a full training programme for practitioners and the only required piece of equipment is a topographer. The Keraton Scout is the preferred model although other topographers can be used and No 7 can make suitable software available.

For the practitioner the benefits of offering Ortho K can be great. The Institute offers the procedure for £100 for a successful fitting, plus £40 a month thereafter for aftercare and replacement lenses each six months. From a patient retention point of view Ortho K ties the patient into the practice that fitted the lens.

Yeo also brought up the role Ortho K is said by some to have in slowing the

Lens inspection at No 7

Modern manufacturing techniques provide predictable results and fast turnaround times on lens supply

onset of myopia in young people. This could be a big selling point for parents of myopic youngsters. The fact that cleaning and insertion takes place at home where hygiene and compliance can be overseen by the parent adds to the parental comfort factor.

Providing a practical practitioner perspective was Shelly Bansal. He endorsed the view that Ortho K was well suited to children and described it as a 'very healthy' option for teenagers. He said he believed that non-compliance by young people was not the norm, suggesting they adopted good habits very quickly.

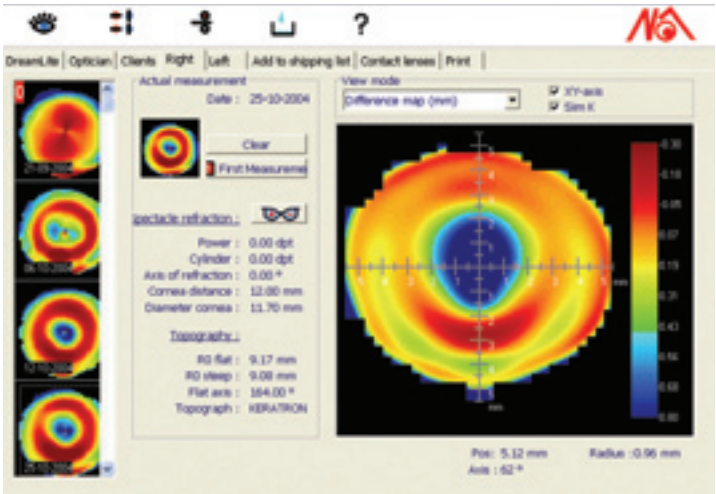
He touched on the area of psychological wellbeing and the benefits children reaped from not having to wear eye correction in front of their peers. This psychological aspect was also brought up by an adult user of the technique at the meeting. He said the psychological boost Ortho K provided was unexpected but had had the greatest impact on his decision to continue to use the technique.

Bansal, an Ortho K user himself, brought along his 13-year-old patient Louisa Savage as a practical illustration of a successful young wearer.

Savage gave a positive account of the technique and said wearing the lenses had been straightforward and comfortable from day one. Since wearing the lenses she had recommended the technique to her friends. Bansal said success rates for successful fitting were around 65 per cent in his practice and on a personal level he wouldn't be without it as a vision correction option.

Clearly, the advent of computer techniques have turned orthokeratology from an expensive, time-consuming and specialist technique into a predictable and repeatable technology available to any practice willing to invest the resources needed. Those promoting the technique point to its extensive use overseas and have no problems finding eminent medical supporters who insist that the procedure poses few risks.

The benefits for the patient present a unique selling point for the practitioner. From a professional point of view the technique ties the patient into the practice and the whole process is ideally suited to a monthly payment plan. This creates the kind of security of cash flow that enables the practice to be more proactive with the procedure.



Computer analysis of topography is an essential part of fitting

Patient's progress

Chris Bennett continues his account of his Ortho K experience with Batemans Opticians

A week later the lenses had arrived at the practice and I returned for another double appointment, for the fitting.

The consultation started with an RGP training session followed by insertion of the lenses. They were surprisingly comfortable for RGPs. Then it was fluorescein and slit-lamp time again to check the centration of the lens and the flatness on the central area of the cornea.

The visual acuity was then checked to make sure the lenses brought my vision up to the legal level for driving. I was asked if I would like to keep the lenses in, but I declined the offer and the practitioner watched as I removed and cleaned them.

A double appointment was booked for the following morning and I was asked to leave the lenses in so another fluorescein and slit-lamp exam could be conducted.

The first evening of wear I approached with some trepidation as I hadn't found RGPs comfortable in the past and was concerned about what overnight wear would be like. I put them in and went to sleep. I did wake during the night and found the lenses uncomfortable but not painful enough to want to remove them.

While awake I found a range of questions coming to mind about whether wetting drops should be used, when the lenses should be taken out. It did cross my mind that poor sleepers or those with young children may find this an inconvenience too far.

For anyone who has never worn RGPs, this first night could come as an uncomfortable shock. Other Ortho K users had warned me that the first couple of nights could be uncomfortable but to stick with it.

In the morning the lenses were surprisingly comfortable but, having to keep the lenses in for the appointment, by 10.30 I was more than ready to take them out.

At the appointment I was examined by Phil Thompson, an area manager with Batemans. He looked at the fit of the lenses and checked for damage or staining on the cornea. He concluded that the lenses were a good fit.

On taking the lenses out I was surprised by the instantaneous quality of my vision. Thompson first put me back on the topographer to take some comparative plots post Ortho K wear. An acuity check revealed my vision after 11 hours of wear to be -0.5 with 0.25 at 75 and +0.5 with 0.25 at 10.

The second readings were compared to the first and clearly showed the flattening of the central area of the cornea, it also showed that the centration of the lens on the eye was very good. Satisfied that the results had been adequate to continue wear the comparative plots were then emailed off to No 7.